

VII.—*On a new Chalcosiid Moth obtained in Formosa by Mr. H. E. Hobson.* By ARTHUR G. BUTLER, F.L.S. &c.

THE following new species was in a series of moths sent to us by Mr. Hobson about six years ago, and of which I have on several occasions commenced drawing up a list, but have been prevented from doing so by more pressing work.

Chalcosiidæ.

Erasmia Hobsoni, sp. n.

♀. Allied to *E. pulchella* of India, but smaller and less brilliantly coloured; the basal metallic green markings on the primaries noticeably smaller; the irregular oblique band beyond them broader and of a deep ochreous (instead of reddish clay-colour); the central metallic green markings narrower, the broad macular white belt less broken up, slightly broader, and with scarcely perceptible greenish edging; all the green streaks on the apical area and external border replaced by grey: secondaries whiter than in *E. pulchella*, with the metallic bluish-green colour confined to the basal sixth, not extending forwards into the cell, the black external border only narrowly edged internally with green, which colour does not extend along the veins or across the border, as in *E. pulchella*. On the under surface the differences are similar, the reddish clay-coloured markings being replaced by clear ochreous, and the green stripes on the external areas of the wings almost wholly obliterated. Expanse of wings 73 millim.

N. Formosa (*Hobson*).

The female of *E. pulchella* expands about 90 millim.

VIII.—*On Isometrus americanus* (Linn.), with a Description of a new Species of the Genus. By R. I. POCOCK, of the British (Natural-History) Museum.

Isometrus americanus (Linn).

This species was described by Linnæus (Mus. Adolph. Frid. p. 84, 1754); subsequently (in Syst. Nat. ed. 10, p. 625, 1758) its name was altered to *europæus*, and as *europæus* it

was described and figured by De Geer (Mém. vii. p. 344, pl. xli. figs. 5-8). De Geer's specimen was examined by Dr. Thorell and pronounced to be specifically identical with a scorpion known as *Atreus obscurus* of Gervais—a scorpion recorded from Columbia, described in Arch. Mus. iv. (1844) p. 219, and figured in Expéd. de Castelnau, Scorpions, pl. i. fig. 3. At the end of Gervais's description, on p. 220, reference is made to a specimen of *obscurus* belonging to M. Goudot.

In 1846 M. Goudot's collection came into the possession of the British Museum. One of the specimens in this collection agrees precisely with the description and figure of *obscurus*, and is, moreover, ticketed, apparently by either Gervais or Goudot, with that name.

An examination of this specimen corroborates Dr. Thorell's determination of the synonymy of *obscurus* with *americanus*. But my conclusions with regard to the sexes of the two typical specimens are by no means in accordance with those of that author. On p. 90 of his well-known work he remarks, "*Sc. europæus*, De Geer, mas est *Sc. obscuri*, Gerv." The grounds for this belief I do not know; but there are several reasons which lead me to think that the two specimens are of the same sex, and females. In the first place, judging from the figures, there is between the two no difference which by analogy can be regarded as sexual. In the second place, both specimens present that lobate dilatation of the base of the pectines, which is, I believe, a sexual character appertaining to the female alone. This belief is based (1) upon the discovery of ova in specimens of an allied species presenting this pectinal peculiarity, and (2) upon the existence in the collection of the British Museum of a number of specimens of a species of *Isometrus* (taken at the same time and in the same place) in some of which the pectines are lobate while in others they are not; and, further, those in which the pectines are not lobate differ from those in which they are lobate in other characters which by analogy belong to the male sex. These characters are—a wider tail, a wider hand, and a wider space between the fingers when closed. The specimens, then, presenting these last features there are good reasons for looking upon as males; and since the females of these differ only in minor particulars from the co-type of *obscurus*, I think there cannot be the smallest doubt that the two forms represent the sexes of *Isometrus americanus* (Linn.).

But another species described by Gervais, of which a co-type is also in the British Museum, differs from *obscurus* in

precisely the same characters (and not in others) as do the males just referred to from their females.

This species is *Sc. forcipula* (Gervais, Arch. Mus. iv. p. 221, pl. xi. fig. 26). Consequently there is no escape from the conclusion that *forcipula* is as much a synonym of *americanus* as *obscurus* is. But, in addition, *forcipula* with its wide and excavated fifth caudal segment falls within the definition of the genus *Phassus* of Thorell—a genus differing from *Isometrus* apparently only in this character. I suspect therefore that *columbianus*, the type of the genus *Phassus*, is a male of some species of *Isometrus* of which the female is unknown. If this be so, *Phassus* can scarcely be recognized as a genus, unless, indeed, one goes to the extent of keeping it for those species of *Isometrus* in which the sexes differ as do those of *americanus*.

If the conclusions here set forth are valid the synonymy of *Isometrus americanus* will be as follows:—

Isometrus americanus, Linn. Mus. Adolph. Frid. p. 84
(1754), ♀?

— *europæus*, Linn. Syst. Nat. ed. 10, p. 625 (1758), ♀?;
De Geer, Mém. vii. p. 344, pl. xli. figs. 5–8, ♀.

— *obscurus*, Gervais, Arch. Mus. iv. p. 219, ♀.

Phassus forcipula, Gervais, l. c. p. 221, ♂.

But this conclusion with regard to the sexes of this species by no means agrees with that of Dr. Karsch (Mitth. Münchn. ent. Ver. 1879, p. 113).

This author, who appears to be well acquainted with *Is. americanus*, asserts that the males may be distinguished from the females by the length of the hand and fingers with reference to the first two caudal segments. In the female, in short, the hand and fingers are considerably longer than these caudal segments; in the male they are equal to them in length—characters which do not obtain in the sexes as recognized by me.

But in the collection of the British Museum there are a number of specimens of *Isometrus* which agree sufficiently well with each other to be ranked as the same species, and which at the same time may be divided into two groups upon certain undoubtedly sexual features. These features are precisely those which Dr. Karsch has pointed out as distinctive of the sexes of *americanus*. Some of these specimens having a short tail and lobate pectines are unquestionably females; others having a long tail and simple

pectines are unquestionably males. The females are very like the females of *americanus*, and can only be distinguished from such female specimens of that species as I have seen by the confluence of the inferior keels of some of the caudal segments. This confluence occurs in the males also and serves, apart from other features, to separate them from the males of *americanus*.

It appears then, so far as a conclusion can be drawn from the few specimens that I have seen, that we have here a species distinct from *americanus*—a species in which the females can only be distinguished from those of *americanus* by the confluent caudal keels; whilst the males, in addition to this character, differ from the males of *americanus* in having a long slender tail, a narrow hand, and contiguous fingers.

But Dr. Karsch regards this confluence of the keels merely as of a varietal nature—having seen apparently intermediate forms—and has given to the specimens presenting it the name *americanus*, var. *androcottoides*.

If this be so, *i. e.* if the females of these long-tailed males be not specifically distinguishable from the females of the thick-tailed males, it seems that we have here a remarkable case of dimorphism, inasmuch as the males of *Isometrus americanus* present themselves under two very different aspects. But, so far as my observations go, there are two species to be dealt with, namely *americanus* and *androcottoides*; and it seems to me to be wiser to regard these two as distinct until the alternative hypothesis of dimorphism be more firmly established than it is at present.

The differences, sexual and asexual, between these two species may be set forth as follows:—

Isometrus americanus (Linn.).

♂ ♀.—Inferior caudal keels not confluent.

♀.—Pectines lobate.

Tail not more than six times as long as cephalothorax, parallel-sided or slightly thicker towards the fifth segment.

Brachium very slightly thinner than hand; fingers not sinuate and in contact when closed.

♂.—Pectines not lobate.

Tail not more than six times as long as cephalothorax, manifestly thicker towards the middle of the fifth segment, then abruptly narrowed.

Brachium only about two thirds the width of the

hand; fingers sinuate and not proximally in contact when closed.

The sexual characters of the male in this species are very variable. The above characters have been taken from specimens presenting the smallest amount of sexual variation. In others, such *e. g.* as the type of *forcipula*, these characters are much more marked.

Of this species I have seen one female from Moyabama, one female from Demerara, three females and two males from Iquitos, two females and two males from Columbia.

Isometrus androcottoides, Karsch.

♂ ♀.—Third caudal segment with a median inferior keel in its hinder half; fourth with a median inferior keel almost throughout its length.

♀.—Pectines lobate.

Tail not more than six times the length of the cephalothorax, parallel-sided or slightly thicker at its anterior extremity.

Brachium very slightly thinner than hand; fingers not sinuate and in contact when closed.

♂.—Pectines not lobate.

Tail more than seven times the length of the cephalothorax, parallel-sided; fifth segment of the same width throughout.

Brachium about seven eighths width of hand; fingers not sinuate and in contact when closed.

Of this species I have seen five males and four females without any locality, one male and two females from Demerara, one female from Trinidad.

Isometrus insignis, sp. n.

Colour.—Dull black above; hands, finger-tips, and under surface of the chelæ and legs with reddish tint; distal tarsal segments and pectines testaceous.

Cephalothorax a little wider than long; anterior margin angularly excised; ocular tubercle situated in the anterior half, shallowly excavated, its sides feebly roughened, the roughness continuous in front with a series of granules which extends towards the anterior margin; the posterior keels parallel, feebly granular, extending from the hind margin to a point about midway between this margin and the ocular tubercle; space between these keels bearing a deep median

smooth sulcus; between this sulcus and the keels on each side are a few granules disposed in two masses; anterior portion of cephalothorax between the anterior keels and the lateral eyes and the posterior portion at the sides sparsely granular; the lateral eyes about equally distant from each other; median eyes separated by a space which is about equal to the diameter of each eye.

Tergites more or less granular, the first marked in its posterior half by a transverse series of granules, which, almost marginal in the middle, curves forwards at the sides; the third with a short, median, longitudinal series of granules in its hinder third and on each side a conspicuous, slightly curved, transverse band, composed of many close-set granules, which does not reach the lateral margin of the tergite; the second in appearance midway between the first and the third; the fourth, fifth, and sixth resembling the third, but having the bands of granules more pronounced; the seventh marked in front with a median, short, granular prominence and on each side two granular keels, which, curving towards each other in front, unite some distance in front of the anterior margin of the tergite.

Sternites in part very finely and sparsely granular, dull-coloured, shining and smooth only behind and in the middle line. The fifth marked with four finely granular keels—two median, parallel, longer; two lateral, posteriorly converging, shorter.

Stigmata slit-like.

Tail robust, nearly parallel-sided, the fifth segment only very slightly wider than the first, about five and a half times the length of the cephalothorax; intercarinal spaces very feebly granular; upper surface scarcely at all hollowed; the fourth segment alone bearing in front a conspicuous depression; the keels bluntly and almost evenly denticulated throughout, the terminal granule of the superior keels of the second, third, and fourth being alone a little more prominent than the rest. The first segment furnished with ten complete keels; the second, third, and fourth with eight, the median lateral keel being wholly absent on the third and fourth and represented by merely a few granules on the posterior half of the second; in the fifth the granules of the inferior surface show a tendency to arrange themselves in a definite series on each side of and parallel to the median granular keel; upper surface of this segment nearly flat, bearing only a very shallow median sulcus.

Vesicle feebly and bluntly granular below, with a more conspicuous granule immediately beneath the aculeus.

Chela.—Upper surface of humerus covered with very fine close-set granules and bounded before and behind by a conspicuous series of larger granules; anterior surface bounded below by a similar series and completely divided into an upper and a lower half by a coarser series parallel to the last-mentioned series; inferior surface smooth; posterior surface furnished with one series; the whole segment therefore is furnished with five parallel series of granules. The brachium furnished with seven keels—two in front, two above, two behind, and one below, all granular except the last named, which is smooth; the intercarinal spaces finely shagreened. Hand a little wider than brachium, keeled; three keels running from the immovable finger to the proximal end of the segment, one bounding the “hand-back” above and two shorter, but unequal, keels running obliquely from the proximal end of the hand towards the movable finger. Fingers long, incurved, almost in contact when closed; movable finger longer than brachium, furnished with a conspicuous lobe, which fits behind a corresponding but smaller lobe on the immovable finger.

Legs furnished with granular keels.

Pectines furnished with twenty-three teeth; the proximal intermediate lamella produced into a large, rounded, smooth lobe.

Measurements in millimetres.—Length of cephalothorax $11\frac{1}{2}$, width $12\frac{1}{2}$; distance of eyes from posterior margin $7\frac{1}{8}$; length of tail 67; length of first segment 8, width $6\frac{1}{3}$, height $6\frac{1}{3}$; ditto of second 10, $6\frac{1}{3}$, 6; ditto of fifth $10\frac{4}{5}$, $6\frac{1}{2}$, 6; ditto of vesicle 6, $6\frac{1}{4}$, $5\frac{3}{4}$; length of aculeus 5; length of humerus $12\frac{1}{8}$, width $3\frac{1}{2}$; ditto of brachium 13, $4\frac{3}{4}$; length of “hand-back” 9, width of hand $5\frac{1}{4}$; length of movable finger $14\frac{3}{4}$, of pecten $7\frac{3}{4}$.

Several female specimens collected in the island of Santa Lucia for the West-Indian Exploration Committee by Mr. G. A. Ramage.

This species is very closely allied to *Isometrus americanus* (Linn.), but may be distinguished by the absence of a spine under the sting and by its greater number of pectinal teeth. The male is unknown.